"INCIDENSE OF ABDOMINAL TUBER-CULOSIS IN CASES OF CHRONIC ABDOMINAL CONDITIONS IN BUNDELKHAND REGION"

THESIS

For the degree of

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CERTIFICATE

This is to certify that the present work entitled, "INCIDENCE OF ABDOMINAL TUBERCULOSIS IN CHRONIC PAIN IN ABDOMEN IN BUNDELKHAND REGION", has been carried out by Dr. Param jeet Singh Chawla under my constant supervisions and guidance. The results and observations were checked and varified by me from time to time. The techniques embodied in this work undertaken by the candidate himself.

This work fulfils the basic ordinances governing the submission of thesis laid down by Bundelkhand University.

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* A C K N O W L E D G E M E N T *

My vocabulary fails when it comes to express my gratitude to all who helped in building up this thesis to its present status.

It is reverance to express my deep sense of gratitude to my learned and most esteemed teacher Dr. R.P. Kala, M.S., Reader, Department of Surgery, M.L.B. Medical College, Jhansi. It would not have been possible to complete this work without his masterly guidance and discerning criticism, received with his blessings and love. I consider myself much privileged in getting constant encouragement, fatherly treatment and oppertunity to work under a scientist of deep learning and pioneer worker in the field of Medicine.

This is my proud privilege to have the opportunity to work under the ablest supervision of Dr. S.L. Agarwal, M.S., F.R.C.S., Professor and Head of Department of Surgery, M.L.B. Medical College,

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* C O N T E N T S *

INTRODUCTION

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The correct interpretation of chronic abdominal pain is one of the challenging demands for the clinician. Since proper therapy often requires a thorough understanding of the subject.

The diagnosis of chronic surgical abdomen so often heard in surgical wards is not an acceptable one because of its often misleading & erroneous connotation. Most obvious of "Chronic abdomen" may not require operative interpretation. Any patient with abdominal pain of long duration requires early and thorough evaluation with specific attempts and accurate diagnosis.

Abdominal tuberculosis is the major contributory factor causing chronic abdomen in India. Among all the infectious diseases that have plagued men, tuberculosis has, probably, been responsible for the greatest morbidity and mortality. It has apperently plagued man ever since human beings emerged as a species on this planet.

John Hunter, said in one of his lectures that, "Tubercles may be classed under the head of spurious tumors; They are most frequent in viscerae. They are mostly of lymphatic kind and are often formed in lungs of people and may grow to considerable size. They are often, on and in the liver, the spleen, coats of intestine, the peritoneum and sometimes on the epiplom".

Ever since Hippocrates propounded the aphorism that "Diarrhoea attacking a person affected with phthisis is a mortal symptom", Tuberculosis of alimentary erect has been well known as one of the terminal phenomenon of pulmonary tuberculosis.

Abdominal tuberculosis is widely regarded as being rare disease in Western Europe and North America. In the Indian subcontinent, it remains a constant disease. This is an acute and chronic communicable disease caused by "Mycobacterium Tuberculosis" which primarily involves the lungs but may effect any organ or tissue in the body. Wherever the Mycobacterial localise, they evoke distinct focal inflammatory reaction known as granulomas.

Tuberculosis is regarded as the single most communicable disease in the world, Global in distribution. It is estimated that at present 50 million, People have or recently have had the disease and many times, the numbers have been infected tubercle bacillus. Many factors contributes to the predisposition to this disease. Tuberculosis flourishes where there is poverty, malnourishment. Poor living conditions and lack of adequate medical care. Undoubtedly the incidence of tuberculosis in any community is a reflection of its socioeconomic and housing standard, with improvement in Public Health, B.C.G. vaccination and antibiotic treatment of tuberculosis, secondary intestinal tuberculosis is expected to become less frequent. In spite of this secondary abdominal tuberculosis remains a common problem in India.

Pathogenisis of tuberculosis involves four considerations.

-Virulence of Mycobacterium tuberculosis.
-The role of induced Hypersensitivity.
-Role of immunity and resistence.
-Genesis of granulomatous pattern of reaction so characteristic.
(But not necessarily diagnostic of tuberculosis)

Abdominal tuberculosis may present as-

-Intestinal tuberculosis.

-Tubercular mesenteric lymphadenitis.

-Psyedo mesenteric cyst.

-Tubercular peritonitis either plastic or ascistic form.

Intestinal tuberculosis may be contracted as a primary infection from ingestion of milk infected with bovine tuberculosis or as a secondary spread of Pulmonary tubercles following the swallowing of infected, material cough from the lungs, the infection becomes in ileum where the abondand lymphoid tissue troops the organism.

The peritoneum may be implanted with tubercule bacilli when they spread by any of at least four roots.

-Through the wall of infected intestine.

-From a mesenteric lymph node.

-From an infected follopean tube, or

-From haematogeneous seedling in course of disseminated tuberculosis.

As the abdominal tuberculosis is still a very common problem associated with chronic abdomen, with varied presentation in "Bundelkhand Region" and we are getting lots of the cases, so it was decided to find out the incidence of abdominal tuberculosis with its various presentations in cases of "Chronic Abdomen".

Bundelkhand Region is a poverty strichen area, and due to illeteracy, Poor hygienic conditions, Poor status of living, over crowding and Mal nutrition there is greater incidence of abdominal tuberculosis in this area.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

1. Historical Background:

Tuberculosis, a disease of great antiquity, is asold as history of mankind. The antique drawings, engrevings, paintings on stones, Egyption mummies, Babylonian scriptures, vedas, charak and Shrushut samhitas, all reflect its existence during respective periods.

Egyption mummies, revealed evidence of tuberculosis and vedas described "Yakshma" , a similar desease.

Hippocrates (460-370 B.C.), the father of Modern Medicine and an eminent epidemiologist described it as "Phthisis" meaning to waste away. Aristotle and celsus also recognised and described the disease and its management. The literature of the library of laipaig, revealed that Jesus Christ, an era man, had suffered from the disastrous disease.

Various forms and manifestations of this disease such as tubercular cold abscess, bovine tuberculosis,

haemoptysis, and contagious nature of the disease where identified and detailed by Pliny (50 A.D.), Arectacus of Rome, Galen (130-200 A.D.) and vegetious (420 A.D.) respectively.

The Arabian physicians of middle ages (400-1400 A.D.) namely Rhasen (850-923 A.D.) and Aveena (930-1037 A.D.) led the spread of misbeliefs based on totally unscientific facts. In England the disease was called as "King's evil" during the 11th and 12th century and touching of king's feet, was practiced as a measure of its cure.

Jerome Fracastor (1483) described the infectious nature of disease. Francicus Sylvius (1614-1672) found 'tubercles' on autopsy of lungs in cases of tuberculosis. Richard Morton (1637-1868) in his famous book "Phthisiologia" (1689) wrote on clinical features of tuberculosis and distinguished it from other forms of Pulmonary diseases.

Sushruta described the disease and observed that it was difficult to cure.

Laimnec (1819) recognised the chronic form of tuberculosis.

In 1882, Robert Koch discovered the tubercle bacillus, and it is one of the most important discoveries in bacteriology.

In 1895 Roentgen discovered X-rays which proved invalvable for diagnosis of tuberculosis.

With the publication of classical paper of Crohn, Ginsburg and oppenheimer in 1932 (36) in which the authors described a chronic granulomatous condition involving the terminal ileum. In this discription, a good deal of interest was focussed on the non-tuberculous lesions of terminal ileum. Although Crohn had described the involvement of terminal ileum only. He himself and many other writers came to recognise that the lesion could also affect caecum, ascending and transverse colon this resulted in the belief that ileo-caecal tuberculosis was not a specific diseases as the histological and clinical picture of the two disease, regional ileitis and ileo-caecal tuberculosis were the same.

Hypertrophic ileo-caecal tuberculosis was recognised as a well known entity, in the part. It is being recognised as primary intestinal tuberculosis, if there are no lesion in the lungs.

Warren and sommers in 1948, examined 120 cases and concluded that so called ileo-caecal tuberculosis is a non specific granulomatous disease.

Ukil (1942); Anand (1956); Hamandi and Thamer (1956), reviewed that intestinal tuberculosis is common in India.

Peritoneal tuberculosis was reported by Faulkner in 1930.

Heselson (1965) gave idea of Peritoneoscopy and Crellona et al (1965) took interest in needle biopsy of Peritoneum to diagnose peritoneal tuberculosis.

2. Abdominal Tuberculosis:

Abdominal tuberculosis has been recognised as a clinical entity for a long time and several detailed descriptions of the disease are met in the literature

from India, and other countries. In India, tuberculosis of intestine is the commonest granulomatous lesion and Crohn's disease is quite rare.

The disease is now rare in U.K. , U.S.A., and Europe and on the other hand common in India. The low incidence of intestinal tuberculosis noted in western hemisphere is related to the marked diminution in the incidence of tuberculous infection.

It is, However, difficult to comment on the exact incidence of intestinal tuberculosis in any country due to limitation of correct antemortem diagnosis. An incidence of 0.8% of hospital admissions in Delhi, while 3.4 to 11 percent of all cases of small intestinal obstruction and 5.7% of all perforations have been reported to be due to abdominal tuberculosis.

Incidence of primary tuberculosis is about 5.0% secondary abdominal tuberculosis is quite frequent and its incidence depends on the frequency of pulmonary disease in a community. It also depends up on how earily the pulmonary disease is being treated in a

population. Incidence of Secondary abdominal tuberculosis is 51.1% of pulmonary tuberculosis cases.

Abdominal tuberculosis is usually a disease of adults with a relatively high incidence between 15 to 40 years of age. In India, disease has higher incidence in females, though such a finding has not been observed in the west. People of low and middle socio-economic status are more susciptible but then is no significant difference in its prevalence in rural an urban population.

3. Etiology and Pathogenesis of Abdominal Tuberculosis:

Abdominal tuberculosis is classified differently according to the etiopathogenesis.

(3.1) Gastro intestinal tuberculosis is classified in two types.

(a) Primary tuberculosis.

(b) Secondary tuberculosis.

Primary tuberculosis is due to ingestion of bovine type of tubercle bacillus. This type has been

declining rapidly in western world as pasteurization has become more widely practiced. It was not seen in any case of Bradford series. In our country, practice of consumption of boiled milk may not allow bovine bacillus to infect human beings.

In 1868 klebs produced enteric ulcers in Guinea pigs by feeding them bovine and human tuberculous matter. Lichtheim in 1883 demonstrated the presence of tubercle bacilli in the stools of patients with tuberculous enteritis.

Infected milk may be the source of bacilli gaving rise to primary enteric lesions. Reichle (1936) was able to isolate only the bovine bacillus in primary illeo-cecal lesions.

In 1932, Blalock held the bovine strain responsible in 39% of children, under five years of age, who were suffering from intestinal tuberculosis. The decreased incidence of hypertrophic tuberculous enteritis in America has been thought to be due to the nearly complete elimination of tuberculosis from cattles.

Secondary tuberculosis is by human type of tubercle bacillus and is secondary to tuberculosis else where, most commonly pulmonary tuberculosis. It is regarded as being spread via the blood stream as in miliary tuberculosis or by direct imasion, as a result of swallowing of infected sputum. In India Ukil and Anand recovered the human strain of tubercle bacilli in nearly all of their patients.

It is generally assumed that the mode of infection is by ingestion of heavily contaminated sputum, secondary to an active pulmonary focus. The incidence of intestinal tuberculosis is proportional to the extent of pulmonary disease.

Human strain Mycobacterium tuberculosis may infect and involve any portion of small and large bowel as well as Peritoneum liver, gall bladder, Stomach, pancreas, kidney, genital tract.

(3.2) Holme sellers and livingstone in 1953 classified abdominal tuberculosis in 3 years.

1. Intestinal

2. Glandular

3. Peritoneal

A patient may exhibit one type or more than one type in different combinations of the above mentioned lesions.

1. Intestinal Tuberculosis:

Following the ingestion of organism, the bacillus passes through the stomach, where it is protected against digestion by its fatty capsule the organism initiates a focus of infection in the ileum, colon, jejunum, appendix, sigmoid colon, rectum, duodenum and stomach, in decreasing order of frequency. Approximately 85% of lesions are located in ileo-caecal region. Incidence of tuberculosis in ileum is quoted 89% and in ileo-caecal junction 87%.

A number of factors have been considered to play a part in determining the localisation of disease.

(i) Areas of increased physiological statis.

(ii) Regions of most abundant lymphoid tissue.

(iii) Areas of increased rate of absorption.

(iv) Areas where the small bowel contents are more completely digested; Thus permitting freer contact of the bacilli with mucus lining.

After transport to the site of stasis, the bacillus becomes localised in the depths of glands of mucosa and initiates the inflammatory reaction. The bacillus is carried through the epithelial layer, by phagocytes, to the submucosa. In the sub mucosa the initial sesion is formed in the lymph follicles or peyer's patches. The overlying mucosa, deprived of its blood supply through endarteritis, may slough forming ulcers. The most active inflammation takes place in the submucosa. It becomes thickened as a result of oedema, cell infilterates, lymphatic hyperplasia, formation of tubercles and fibrosis. Penitration of inflammation, through the wall leads to the formation of tubercles which may be visualised on gross examination. This spread is considered to occur either by lymph channels or by direct contiquity.

The typical microscopic picture of tuberculous enteritis comprises.

(a) Epitheloid cells.

(b) Lymphocyte infiltration in to the lymph follicles.

(c) Lymph nodes with giant cells formation and central caseation necrosis.

Resultant lymphangitis and arteritis causes a circular 'girdle' mucosal ulceration. Longitudinal ulcers, rarely develop unless peyer's patchesalone are involved. Consequently cobble stoning of crohn's disease, which requires both transverse and longitudinal ulcers is seldom seen in intestinal tuberculosis.

Tuberculous ulcers, classically encircle the bowel and heal by fibrosis to create a residual stenotic lesion and thus they lead to slowly progressive bowel obstruction.

2. <u>Glandular tuberculosis</u>:

Because of the apparent affinity of the organism for Lymphoid tissue, mesenteric lymph nodes are involved early in the pathogenetic sequence, often with more extensive caseation necrosis then the accopanying bowel lesion. The mesenteric nodes are invaded through transportation of tuberculous material along lymph channels. There, lymph nodes show complete range of changes from hyperplasia to caseation and calcification.

It is important to examine mesenteric lymph

nodes. Anand pointed out this fact and only 10% patients of his series showed caseation necrosis in the bowel wall; where as, caseation was present in the lymph nodes in 100% of patients. In the end stage, lymphatic obstruction results and eventually the mesentery as well as the involved bowel becomes a thick, fixed tuberculous mass.

3. Peritoneal Tuberculosis:

It follows haematogenous spread from distinct areas of tubercular lesions. It may also be caused by discharge of caseous material from lymph nodes, diseased bowel or fallopian tubes. Co-existing tubercular enteritis and peritonitis are not common.

Ascitic form Peritonium is studied with tubercules and the peritoneal cavity becomes filled with pale, straw colored fluid.

Plastic form - It is characterised by production of widespread adhesion. These adhesions cause coils of Intestine to be come matted together and distended.

Following, is a very valuable clenico-pathological classification, embracing, Pathology and prognosis and offering a guide to treatment.

A. Ulcerative

B. Hypertrophic

C. Ulcero-hypertrophic

The ulcerative process, virulent and carrying poor prognosis, seems to be the result of an over whelming continuous inoculum of bacilli from the lungs. It is not likely to be amenable to surgical treatment. Antibiotics may offer the only hope of control.

By contrast, hypertrophic process, the common cause of tuberculous ileo-caecal tumor, is frequently the only tuberculosis lesion; for obstructing symptoms and it is amenable to surgical treatment. In such cases, antibiotics are only a desirable adjunct. This lesion is common in ileo-caecal region.

Ulcero-hypertrophic variety is a combination of the two preceding types and is most frequently classified under the hypertrophic variety.

(3.3) Pathology of Crohn's Disease:

The bowel is engorged and oedematous so that the lumen is markedly narrowed and may produce obstruction. The mucosa is oedematous showing a "cobble stone" pattern with linear ulceration and fissuring. Characteristically these changes are patchy, even when a relatively short segment of bowel is affected, it can be seen that inflammatory process is interrupted by islands of normal mucosa. The change from normal mucosa to the affected part is abrupt. This type of lesion is called 'Skip' lession. The affected lymph nodes are enlarged and mesentery is thickened.

Microscopically, inflammatory change involves all coats of the bowel wall. All gradus of inflammation may be seen and characteristically there is oedema and hyperplasia of the lymphoid follicles. There is presence of deep fissures on to the mucosal surface and sometimes these fissures pass through the entire thickness of the bowel wall. These deep fissures are responsible for fistula formation.

(4) Clinical features of Abdominal tuberculosis:

Clinical diagnosis of abdominal tuberculosis, in its early stage is one of the most difficult one. The accuracy of clinical diagnosis was 50% in series of 182 cases studied by Das (39). The fact that symptomtology is so vague and presentation so poor that a high index of suspicion is required before one proceeds to confirm its diagnosis by investigations.

Clinical presentation of a patient with abdominal tuberculosis will very depending upon:-

(i) Severty of the disease.
(ii) Immune response of the patient.
(iii) Duration of disease.
(iv) Part of gastro intestinal tract affected.
(v) Associated complications.

(4.1) Age incidence:

The most frequent age of on set is between 20-40 years. In Western countries the most common age group which is affected by abdominal tuberculosis is 40 years (60, 91); However, some authors reported the mean age of 63 years. In India, the commonest age group affected is 20-30 years (39, 73).

(4.2) Sex Ratio :

Abdominal tuberculosis is more common in females than in males. In Britain the male and female sex ratio, affected, is 1 : 25 and in America it is 1 : 1.3 (60). In India, sex ratio varies from 1 : 2.6 to 1 : 2.6 to 1 : 3.4 (39, 73).

(4.3) General Symptoms :

Low grade fever with evening rise is a common symptom associated with loss of appetite, loss of weight and general weakness. Percentage of these symptoms, in western countries varies from 25 to 75%. In India, these symptoms are analysed, as fever in 42.2%, loss of appetite in 44.4% , loss of weight in 35.0% and general weakness in 45.6% cases.

(4.4) Abdominal Symptoms:

These symptoms are vague and nonspecific. A number of reports state that there is considerable variations among those patients with pulmonary tuberculosis who have gastro-intestinal symptoms. At autopsy many instances of tubercular enteritis are found where no suggestive symptoms were recorded prior to death.

(i) Abdominal Pain:

In most series, pain of cramping nature in abdomen is the most common symptoms. Pain may be of any type depending up on Pathology and the viscera involved i.e. tubercular peritonitis, mesenteric lymphadenitis or ulcerative or hypertrophic tuberculosis of intestine.

In series studied, by Das (39), Pain in abdomen was in 94% of Patients and following table depicts the distribution of pain in abdomen.

Site of Pain	No. of cases	Percentage
1. Umbilicus	60	35.4
2. Generalised	55	32.3
3. Rt. iliac fossa	35	20.6
4. Epigastrium	11	6.5
5. Lt. Hypochondrium	4	2.4
6. Rt. Hypochondrium	3	1.8
7. Lt. iliac fossa	1	0.5
8. Rt. Lumber region	1	0.5
Total:	170	94.0

Analysis of character of pain revealed the following:-

(a) Out of 93 cases of obstructure group, in 89% cases pain was colicky; in sex cases it was vague and in two cases it was gripping.

(b) In non-obstructive group of cases colicky pain was present in 37 cases out of 89 , while pain was vague in 29 and gripping in character in 21 cases.

Khan (73) reported vague abdominal pain in 81.8% colicky pain in 50% cases and acute continuous pain in 18.2% cases.

In western countries, some authors reported abdominal pain in 77% of cases in series of 24 patients. The pain occured most frequently in umbilical region, epigastric and in, right iliac fossa region. In this series, pain was of cramping in nature.

(ii) Nausea & Vomiting:

These symptoms occur also in other various conditions, so these symptoms are not specific to abdominal tuberculosis. These symptoms are more prominent and more frequent in obstructive lesions.

In different series incidence of vomiting is reported to be 69.6% and Nausea in 40.9% cases. Patients with ascites had the lowest incidence of vomiting (25%). In western countries incidence of vomiting varies from 48.3% to 81% and that of Nausea is 51.7% .

(iii) Change in bowel habit:

This may occur in any inflammatory and obstructive lesion of abdomen, but this is usual occurence in abdominal tuberculosis. Usually this symptoms signifies intestinal tuberculosis, but in peritoneal and mesenteric lymph node involvement patient complains of change in bowel habit in form of diarrhoea, constipation and alternate diarrhoea and constipation.

In western countries diarrhoea is found in 32.2% to 36.2% cases, constipation in 22.5% to 24.1% cases and alternate diarrhoea and constipation in 3.4% cases.

In our country the incidence of these symptom is 4.5% to 11.0%, 46.7% and 8.8% respectively. In obstructive group, Constipation is more common (67.7%) than in non-obstructive group (24.8%).

(iv) Moving lump in Abdomen:

This feature signifies hypertrophic tuberculosis of intestine and also uncerative process in intestine causing narrowing of the bowel segment. This symptom is due to movement of peristalsis proximal to the obstruction. Some authors described this feature as feeling of persistent lump or ball of wind or 'Gola' moving in abdomen.

In western countries 26% incidence, of moving lump in abdomen is reported, and in India 28.6% to 36% incidence is reported.

(v) Borborygmi:

These are the sound of flatus in the intestine and signifies increased mobility of gut. This gas is due to biological process taking place in intestine, some gas producing bacteria and aerophagia. In western countries incidence of borborygmi is 17.2% and in our country it is 25.5%.

(vi) Post Prandial Distress:

Feeling of abdominal distress after meals, is common feature of abdominal tuberculosis. In

western countries its incidence is 41.4% and in our country, 81.8% incidence is noted.

(vii) Distension of Abdomen:

It is a common feature of obstructive variety and ascitic type of tubercular peritonitis. Various authors reported its incidence in western countries and India, which is 22.4% and 45.0% respectively.

(viii) Scanty flow during menstrual period in female patients, is due to tubercular involvement of genital tract or due to general weakness. Das reported 35.6% incidence of oligomenorrhoea.

(4.5) Duration of Symptoms:

The duration of symptoms before attending hospital varies considerably. This reflects the insidious nature of the disease process as well as the difficulty in making diagnosis.

In U.K., reported duration of symptoms is one month to six months and in U.S.A. 3 years.

In our country, the duration of symptoms is one year.

(4.6) Physical Signs:

(i) Poorly nourished Patient:

Loss of appetite, change in bowel habits and impairment of digestion and proteinloss in form of mucus, ascitic fluid, contribute to loss of weight and malnutrition. Incidence of this sign varies from 13% to 72.7%.

(ii) Tenderness in abdomen:

Involvement of parietal peritoneum, intestinal obstruction and mesenteric lymph adenitis, contribute to tenderness in abdomen. In our country it is the most frequent sign.

(iii) Distension of abdomen:

Distension of abdomen varies from mild to severe, depending upon type of pathology. Hypo-proteinaemia is also a contributing factor in distension of abdomen. Incidence of this sign varies from 58.2% to 81.8%.

(iv) Doughy feel to abdomen is after quoted as typical of a tubercular abdomen. This sign is present in 6% cases is India.

(v) Visible peristalsis is due to increased mobility of intestine and is most frequent finding in obstructive group. This sign is absent in ascitic tubercular peritonitis.

(vi) ascitis is due to tubercular peritonitis and fluid is on exudate. In western countries its incidence is 21% and in our country its incidence is 18.6% to 27.2% .

(vii) Lump in abdomen:

Is due to hypertrophic tuberculosis or involvement of omentum by tubercular process, site of this lump varies considerably.

Reports from western countries indicate that the incidence of lump in abdomen is 26% to 65% . 16% cases have lump in right iliac fossa, 6.4% in umbilical region and 3.2% in left iliac fossa region.

In India, various reports showed that incidence of lump in abdomen varies from 28.6% to 59.0% .

(4.7) Features of different types of abdominal tuberculosis:

1) Ulcerative type:

There is chronic continuous or periodic diarrhoea with gripping pain. These cases may often have acute exacerbations. Lack of appetite and vomiting is a frequent symptom. General toxaemic manifestations in the form of high grade fever, cold sweat general weakness etc. are quite marked. In these cases, signs and symptoms of pulmonary tuberculosis are frequently encountered as associated findings.

2) Hypertrophic type:

There is persistent feeling of diffuse distension of abdomen which is aggravated after meals and is relieved after passing flatus. It is associated with feeling of increased borborygmi, in the majority of patients. Feeling of a persistent lump in right iliac fossa or a ball of wind or 'Gola'

moving in the abdomen are other important abdominal complaints. This later symptom is highly suggestive of partial obstruction in a patient of intestinal tuberculosis.

Abdomen, reveals tenderness and a mass in right iliac fossa, hyperative bowel sounds and visible small bowel peristalsis. The lump in right iliac fossa is formed by an ileo-caecal mass. Caecum is felt thickened, tender and distended and quite often it can be emptied by pressure, producing a gurgling sound in the process.

3. Mesenteric Lymph Adenitis:

Apart from other features of abdominal tuberculosis, nodular swelling can be felt due to enlarged mesenteric lymph nodes. Tenderness all over the abdomen and central fullness may be present. Usually we can find marks of counter irritation all over the abdomen.

4. Tuberculous Peritonitis:

It proved difficult to separate the cases of tuberculous peritonitis into plastic and exudative

type. Generally the patients with adhesive type. Generally the patients with adhesive type of tuberculous peritonitis present with chronic history and abdominal pain than swelling. The abdomen is tender, occasionally rigid and contains abdominal masses. The doughy abdomen is found in some cases. There may be guarding of abdominal wall.

The patient with exsudative type have a more acute history. There is rapid onset of abdominal pain and swelling associated with chills and rigors with fever. Ascitis is frequent finding.

(5) Diagnosis of abdominal tuberculosis:

(5.1) History and Clinical Examination:

History and clinical examination is so vague that a high index of suspicion is required before one proceeds to confirm the diagnosis by investigations.

(5.2) Blood Studies:

Haematological determinations are so non-specific that they have no definite diagnostic

value. These diagnostic techniques are proved disappointing.

Reports from western countries suggest that patients with active tuberculosis may have normal erythrocyte sedimentation rate. Incidence of raised E.S.R. varies from 25% to 92.5%. In our country incidence of raised E.S.R. is 92.9% .

Leucocytosis was present in 19.8% to 46% of cases in series of patients, studied in advanced countries, where as in our country its incidence is 14% to 43.8% .

Marked lymphocytosis is reported by Kaufman and Donovan in cases of abdominal tuberculosis. In contrast to this, Das reported low lymphocyte count in 14.7% of patients of his series.

In majority of cases (70%), haemoglobin level was below 12.7g% in series of Kaufman and Donovan. Hsuan et al also reported anaemia in 55% of cases. In our country, anaemia is constant finding in this lesion.

(5.3) Mantoux Test:

This is also known as tuberculin skin test. Tuberculin is a protein fraction of tubercle bacilli, when introduced in to the skin of a person with tuberculous infection, whether clinically apparent or dormant, it triggers release of several lymphokines. These, lymphokines cause a localised thickening of the skin over the next 24 to 72 hours.

In clinical practice, it is performed, by injecting 0.1 ml of a solution containing 5 tuberculin units (T.U.) of purified protein derivative stablised with tween 80 (5 TU of PPD - T) in to the skin of the volar aspect of the forearm with a small hypodermic needle of 26 gauge. The test is read 48 to 72 hours later and is considered positive if the diameter of skin thickening measures 10 mm or more, doubt-ful if it is 5 to 10 mm and negative if less than 5 mm.

Detailed literature on the helpfulness of the tuberculin skin test in promoting the diagnosis of abdominal tuberculosis is sparse. Most reviews have either not reported data on tuberculin skin test or have only noted that the Mantoux Test was positive.

Mantoux skin test in dilutions of 1 : 1000

were positive in 13 patients out of 17 patients studied by George. He suggested that negative reactions are of no help in excluding disease, but strongly positive reactions are helpful guide to the presence of abdominal tuberculosis. This test was positive in 31% cases of Bradford series and 60% cases studied by Mandal and Scofield. In our country, studies had been performed indicating that test is positive in 100% cases of abdominal tuberculosis.

(5.4) Radiology in Abdominal Tuberculosis:

The greatest aid to the diagnosis of abdominal tuberculosis is radiology. If a patient had got radiologically proved pulmonary tuberculosis and complains of abdominal symptoms for a long time then we can proceed to investigate for abdominal tuberculosis.

Although there are no pathognomic signs, certain features are suggestive of disease.

(i) Chest Roentgenogram:

Following lesions are characteristic of tuberculosis.

(a) Early tubercular infiltration which may be exudative or productive. This is manifested as an increased density or a were defined homogenous area of consolidation.

(b) Pneumonic or Broncho pneumonic lesion.

(c) Cavitaling lesions.

(d) Disseminated lesions- Fine or course nodular densities scattered through out both the lungs.

(e) Miliary tuberculosis- Millet seed size shadows distributed evenly in both the lungs from apices to bases.

(f) Pleurisy with effusion.

(g) Calcification of hilar lymph nodes and paratrachial lymph nodes.

In our country different authors reported different incidences pulmonary tuberculosis associated with abdominal tuberculosis. This figure varies from 6% to 30% .

(ii) Plain roentgenogram of Abdomen:

Plain X-Ray abdomen may reveal the following features.

(a) Calcifued mesentric lymph nodes.

(b) Fluid levels, in the patient with the acute or subacute intestinal obstruction.

(c) Fluid in Peritoneal Cavity.

(d) Right iliac fossa mass.

The triad of ascitis, absence of gas shadow or gaslessness in Right iliac fossa (i.e. presence of mass in Right iliac fossa) and segmental dialatation of terminal ileum on plain film roentgenogram, appears to be suspicious of intestinal tuberculosis.

Das reported that plain X-ray abdomen was done in 54 cases and in 14 cases, out of 29 cases of constructive group, multiple fluid levels and gas shadows were present. In only one case, out of 25 cases belonging to the non-obstructive group. Multiple fluid levels and gas shadows were present. Calcified mesenteric lymph nodes were observed in two cases of ascitic group; gas under diaphragm was found in our care each, belonging to the non-obstructive group and obstructive group.

(iii) Barium Meal Examination:

Following features on barium meal examination are suggestive of intestinal tuberculosis.

(a) Sterlins, in 1911, first noted that ileo-caecal tuberculosis is characterised by lack of retention of barium in the diseased segment of ileum and caecum. So a column of barium remains proximal and distal to this filling defect. The area occupied by the lesion fails to visualise because of its hyper irritable state; barium passes rapidly through it to a region of normal tonus & size.

(b) Single filling defect in the caecum is frequently encountered in hyperplastic tuberculosis but it can not be differentiated from other granulomatous processes or malignancy.

(c) Higherup caecum and obtuse angle of ileo-caecal junction with caecum is differentiating feature from malignancy caecum.

(d) Dialatation, delay in emptying and prominent valvulae conniventes of the small bowel are common in hyperplastic ileo-caecal tuberculosis.

(e) Ileo-caecal value may show a tendency to gape due to ulceration or granulation, progressing to fibrosis and retraction of the value lips. This is represented, roentgenographically by a broad based tnangular appearance of the terminal ileum (base toward caecum) and this appearance is known as Fleischner's sing.

In the series reported by Das barium meal was done in 38 patients. In 15 cases there was no significant finding. In 34.2% cases, areas of small bowel obstruction and dilatation were seen. An unusual finding was the presence of pyloric obstruction in one case and dialatation of first, second and third, part of duodenum in three cases.

(iv) Barium Enema Examination:

Barium enema studies are to examine the colon especially the caecum. On examination contracted and lifted up caecum, may be found. There may be obstruction at ileo-caecal junction. Terminal ileum may show dialatation, an irregular and persistant filling defect in caecum and ascending colon may also be found.

(v) Intravenous Pyelography:

It can show kinking of ureter due to tubercular retroperitoneal fibrosis. Singh et al were not able to show any urinary abnormality by intravenous pyclography in 47 patients of tubercular peritonitis.

(vi) Salpingography:

This procedure can reveal tubercular involvement of fallopian tube. Beaded appearance of tube is characteristic of tubercular salpingitis.

(vii) Lymphangiography: 72

Visualisation of lymphatic system of involved region is also an important diagnostic procedure for abdominal tuberculosis.

(5.5) Ascitic fluid Examination:

This is one of the most important procedures for diagnosis of tubercular peritonitis of ascitic type. Following are the characteristic features of ascitic fluid.

(a) Yellow or Straw Colored fluid.

(b) Specific gravity more than 1015.

(c) Protein content more than 2.5mg per dl.

(d) 1000 leucocytes/mm^3 with 70% lymphocytes.

(e) Positive test for staining and culture of acid fast bacilli.

(5.6) Peritoneal Biopsy:

It is safe and useful method to diagnose abdominal tuberculosis. This procedure is much more readily performed in patients with ascitis, than in those with adhesive type of tubercular peritonitis.

Das(1976) examined 71 cases of abdominal tuberculosis by peritoneal biopsy, of these, 59 biopsies were done with an Abrahms needle and 12, by making a small incision in Right iliac fossa (open peritoneal biopsy). In ascitic and chronic miliary peritonitis group, the biopsy material showed tubercular histopathology, in 46 cases out of 52 . In the remaining cases a non specific picture was present although these cases had other evidences tuberculosis out of 12 cases, with open peritoneal biopsy, histopathological examination revealed tubercular peritonitis in 11 cases.

(5.7) Biopsy of other tissues is a confirmatory evidence of abdominal tuberculosis.

(a) Mesenteric lymph nodes.

(b) Excised tissue removed after laparotomy.

(c) Liver.

(d) Endometrium.

(5.8) Bacteriological Examination:

Demonstration of acid fast bacilli by following methods is confirmatory evidence of abdominal tuberculosis.

(a) Staining

(b) Culture

(c) Animal inoculation.

These bacilli may be demonstrated in sputum, gastric aspirate, stools, excised tissue, ascitic fluid etc.

(5.9) Colonoscopy with targeted biopsy is a valuable help to differentiate tuberculous lesions from other diseases of large bowel. Nodular regions with areas of polypoid changes are the major gross appearances, this may simulate neoplastic changes.

(5.10) Radio Isotopic Scanning is also a helpful method to diagnose tubercular peritonitis. This is performed with the help of gallium 67 . Not only tubercles in the abdomen are seen on this scan but also extraperitoneal infection such as the pleural effusion of tubercular origin can also be detected. It is not, yet, known, how specific gallium 67 scannire is for tuberculous infection.

(6.0) Complications of Abdominal Tuberculosis:

(6.1) Intestinal Obstruction:

It is the most common complication of abdominal tuberculosis. This occurs in three ways.

(i) Encroachment of the thickened bowel wall up on the lumen because of hypertrophy and circular contraction of scar tissue.

(ii) Extensive intraperitoneal adhesions, which is formed as a result of exudation during the earlier acute phases, eventually contract, resulting in kinking or constriction of intestine.

(iii) As a result of retraction of the mesentary and shortening of the right colon in the healing phase, the medial wall of the caecum is drawn and medially, causing a change in the angle of

entrance of the terminal ileum into the caecum from 90 to 180 degrees. A kink at the ileo-caecal junction results and causes obstruction.

(iv) In addition to these, mesenteric lymphadenopathy causes localised compression and leads to intestinal obstruction.

Khan reported 59% cases of sub acute intestinal obstruction and analysed them as follows:

(a) Stricture of small bowel (13.6%).

(b) Hypertrophic ileo-caecal tuberculosis (92%).

(c) Adhesive Peritonitis (27.4%).

(d) Tubes mesentrica (9.2%).

(6.2) Perforation of Intestine: is rare as the healing of ulcer in intestinal tuberculosis is by fibrosis. Therefore, it produces stricture rather than perforation.

Incidence of perforation in tuberculosis of bowel varies from 0.10.5% .

(6.3) Haemorrhage from ulcer is rare:

There was no case in series of patients studied by Khan. However, Pimparkar reported incidence of 1 to 4% and Noman et al reported haemorrhage in 39% cases.

(6.4) Intussusception can also occur in abdominal tuberculosis and may lead to acute intestinal obstruction.

(6.5) Fistula may develop between bowel and female adnexal organs and between bowel and external surface usually they occure as a result of secondary bacterial invasion in the areas of necrosis causing penitration abscesses.

Khan reported two cases of fistula out of 22 cases (9.2%). One case had perianal fistula and other entero-umbilical fistula. Two other patients developed intestinal fistulae, after surgery when an attempt was made to separate the loops of bowel in cases of fibrous type of peritonitis and in tabes mesenterica, when gut was adherent to lymph glands.

Paustian and Bochus reported the incidence of fistula in 25% cases.

(6.6) Malabsorption Syndrome and steatorrhoea are common occurence in tubercular abdomen.

(6.7) Amenorrhoea & Sterility in females is reported by Banerjee 1950. He reported it in 91.5% of female patients.

(6.8) Amyloidosis is a very rare complication. Jones and Peck reported amyloidosis of liver in 5% of 3/0 autopsus performed and in 53% there was fatty infiltration of liver.

(7.0) Treatment of Abdominal Tuberculosis:

Drug therapy of gastro-intestinal tuberculosis is the same as for the disease elsewhere. Prior to introduction of streptomycin, treatment consisted of general supportive case, dietotherapy, heliotherapy, calcium gluconate and pneumo peritoneum, sanatorium care.

With the introduction of antibiotics and chemotherapeutic agents and their miraculous effect on intestinal tuberculosis, medicinal therapy became the treatment of choice.

The use of cortico steroids, to prevent intestinal obstruction from tuberculous enteritis, is largely emperical although, are study indicates that corticosteroids given for peritonitis reduce the likely hood of intestinal obstruction.

Anti tubercular drugs have changed the face of treatment of gastro-intestinal as well as other forms of tuberculosis used in conjunction with excisional surgery or with by pass surgery, they appear to have contrested the intestinal and pulmonary disease.

Surgical interventions is required for the complications of abdominal tuberculosis.

INDICATIONS OF SURGICAL INTERVENTIONS:

1. Intestinal obstruction due to strictures of bowel or shortening of mesentery.

2. Hypertrophic ileo-caecal tuberculosis resulting in marked decrease in lumen.

3. Free perforation of tuberculous ulcer.

4. Perforation with localised abscess formation.

5. Gastro-intestinal haemorrhage.

6. Internal or external tuberculous fistulae.

7. Tuberculous lesions of anal and perianal region.

George mentioned that merely opening the abdomen had a beneficial effect on the outlook.

The advocated surgical treatment for tuberculosis of ileo-caecal region is by exclusion of diseased segment by ileo-transverse anastomosis or complete removal by right hemicolectomy.

The strictures in the bowel have been dealt with either by resection or entero-anastomosis. Sharma & Mehta suggested localised resection for tuberculous lesions; and similarly the simple procedure of strictureplasty for cicatrising lesions of the bowel is advocated.

MATERIAL AND METHODS

MATERIAL AND METHODS

In the present study an attempt has been made to recognise the incidence of Abdominal Tuberculosis in Patients of chronic Pain in abdomen. The patients were Indoor cases admitted in M.L.B. Medical College, Hospital, Jhansi.

These patients were diagnosed by following procedures:-

(i) Clinical Examination.

(ii) Biochemical Methods.

(iii) Serological Procedures.

(iv) Radiological Techniques.

(v) Pathological and Micro-biological Techniques.

(vi) Histopathological Techniques.

(vii) Operative Procedures.

These methods of diagnosis were conducted in department of surgery, department of pathology and Micro-biology and department of Radiology, M.L.B.

Medical College, Jhansi in the season of 1989 to 1990.

The patients were treated by conservation treatment and/or operative treatment, in surgical wards.

Attempts were made to co-relate the results of study with clinico-pathological observations, operative and histopathological observations.

The following procedures have been adopted.

(I) HISTORY:

In each case a detailed history of patient was taken with particulars of patients i.e., name, age, sex, socio-economic status, occupation, monthly income, status of literacy, number of family members and number of living rooms.

The presenting complaints were recorded in chronological order and they were elaborated under heading of history of present illness with particulars emphasis laid on site, character of complaints and the progress of disease.

Any significant history past, dietary history and obstetrical history, in patient, was also interrogated.

(II) PHYSICAL EXAMINATION:

This was carried out under following heads.

(i) General Examination:

Under this heading, general condition of patient was noted, with emphasis over state of nutrition, oedema, clubbing, temperature, pallor and state of lymph nodes all over the body.

(ii) Systemic Examination:

Under this heading, each system was examined thoroughly with particular stress over examination of abdomen, respiratory and reticuloendothelial system.

(iii) Abdomen:

In examination of Abdomen following points were noted.

-Shape of Abdomen.

-Distention of Abdomen.

-Respiratory Movements.

-Umblicus.

-Any discharging Sinus.

-Hernial Sites.

-Testes (in male patients).

-Any scar over abdomen.

-Characteristics of lump in Abdomen.
(if present)

-Perianal region.

-Per-rectal Examination.

(iib) Respiratory system.

(iic) Cardio vascular system.

(iid) Muscule-skeital system.

(iie) Reticulo-endothetial system.

(XIX) <u>BLOOD STUDIES</u>:

Blood was collected in double oxalate vial at bed side in wards and the following investigations were done.

(i) <u>Leucocyte count</u>:

Total leucocyte and differential leucocyte and differential leucocyte counts were done by using Neubaur chamber glass slides.

(ii) Erythrocyte sedimentation rate:

This investigation was done by using wintrobe's tube.

(IV) MONTOUK TEST:

This test was performed in patient at bed side by using tubercular syringe and hypodermic needles of 26 gauge the reagent used is tuberculin diluted (Purified Protein Derivative) with concentration of 5 Tu/0.1 ml; flexor surface of forearm was selected, about 4 inches below the elbow joint. The skin is cleansed with 70% alcohal and allowed to dry. 0.1 ml of tuberculin (PPD) Solution is taken in sterite tuberculin syringe fitted with a short 26 gauge needle. The reagent is injected intra dermally and results were read between 48 to 72 hours after injection.

Diameter of induration was measured transversely to the long axis of the forearm and recorded in millimeters. Reaction to tuberculin was classified as follows:-

(i) Positive:

Induration measuring 10.0 mm or more.

(ii) Doubtful:

Induration measuring between 5 to 9 mm. In this case retesting was done.

(iii) Negative:

Induration of less than 5 mm.

(V) RADIOLOGICAL TECHNIQUES:

Patients were investigated, for following procedures, in department of Radiology, M.L.B. Medical College, Hospital, Jhansi.

(i) X-ray Chest P.A. View.

(ii) Plain X-ray abdomen antero-posterior view, with scout film, in erect posture.

(iii) Barium Meal follow-though.

(iv) Barium Enema.

X-ray Chest Postero-anterior view and plain X-ray abdomen needed no preperation of patient neither any specialised technique.

Barium Meal Follow-Through:

Barium sulphate was used as non-flocculating

contrast medium in proper dilution with tap water (three parts of barium sulphate powder dissolved in to two parts of water).

One day prior to the investigation light diet was given to patient. In preceding night a mild luxature was given at bed time. Then the patient was kept nil orally till the investigation was over.

Patient was allowed to swallow about 400 ml. of barium sulphate as non-flocculating contrast medium at 5.00 A.M. Patient was then examined under fluoroscopy, to check the motility and if the constrast reached ileo-caecal junction, with the help of screening and then roentgenogram was taken.

Barium Enema:

Barium sulphate was used as non-flocculating contrast medium in dilution with tap water (Three parts of barium sulphate powder dissolved in two parts of water).

About two days prior to the investigation

patients was prepared by giving laxatives and on the day of examination cleansing enema was given three hours prior to procedure. Patient was not given anything orally till the investigation was over.

About one litre of barium sulphate solution was used for procedure by enema can. Connection tube, made of India rubber was attached to the enema can. About 7.5 to 10 cm. of this tube was introduced into the anal canal and rectum after lubricating it with xylocaine ointment. During the exema, the container was kept at the height of about 30 to 45 cm.

One exposure was taken before evacuation and one after evacuation of enema contents.

(VI) PATHOLOGICAL AND MICROBIOLOGICAL TECHNIQUES:

Each case was investigated for various techniques in following samples.

(i) Sputum for acid fast bacilli.

(ii) Gastric aspirate for acid fast bacillus staining, culture and animal inoculation.

(iii) Ascitic fluid was also investigated for gross physical examination, biochemical, cytological examination and acid fast bacillus staining etc.

These specimens viz-sputum, gastric aspirate and ascitic fluid were collected bed side in wards, in plain vials and carried to department of pathology and Microbiology for various methods of investigations.

(VII) HISTOPATHOLOGICAL TECHNIQUES:

Tissue was taken out from the involved organ by operative procedure like laparotomy, open peritoneal biopsy and was collected in operation theatre, in glass containers and then sent to department of Pathology after having placed them on Normal Saline (Formalin) the tissue was processed and then stained by Haematoxyline and Eosine stain and Ziel-Nielsen stain.

(VIII) OPERATIVE PROCEDURES:

These procedures like abdominal paracentisis, open peritoneal biopsy and exploratory laparotomy were done in wards and operation theatre.

OBSERVATIONS

"OBSERVATIONS"

Present study was conducted on a series of 41 patients of either sex and all age group, admitted in M.L.B. Medical College and Hospital, Jhansi during session 1989-90.

Table - I :

Twelve shows that of these cases, cases turned out to be cases of abdominal tuberculosis, remaining twenty nine cases were proved to be intestinal obstruction, reccurent appendicitis, chronic cholecystis, crohn's disease etc.

Table - I : Showing incidence of abdominal tuberculosis in total cases studied in the present series.

S.No.	Diagnosis of cases	No. of cases	Percentage of cases
1.	Abdominal tuberculosis	12	30%
2.	Reccurrent appendicitis	9	22.5%
3.	Chronic chole cystitis	6	15%
4.	Crohn's Disease	1	2.5%
5.	Partial intestinal obst. (Ileo-caecal mass)	13	32%

Rest of the observations are made on 12 cases of abdominal tuberculosis.

Table - II :

Depects that five male and seven female patients constituted whole group of patients of Abdominal Tuberculosis out of 41 patients studied 12 patients had abdominal tuberculosis out of 12 patients following is the sex ratio.

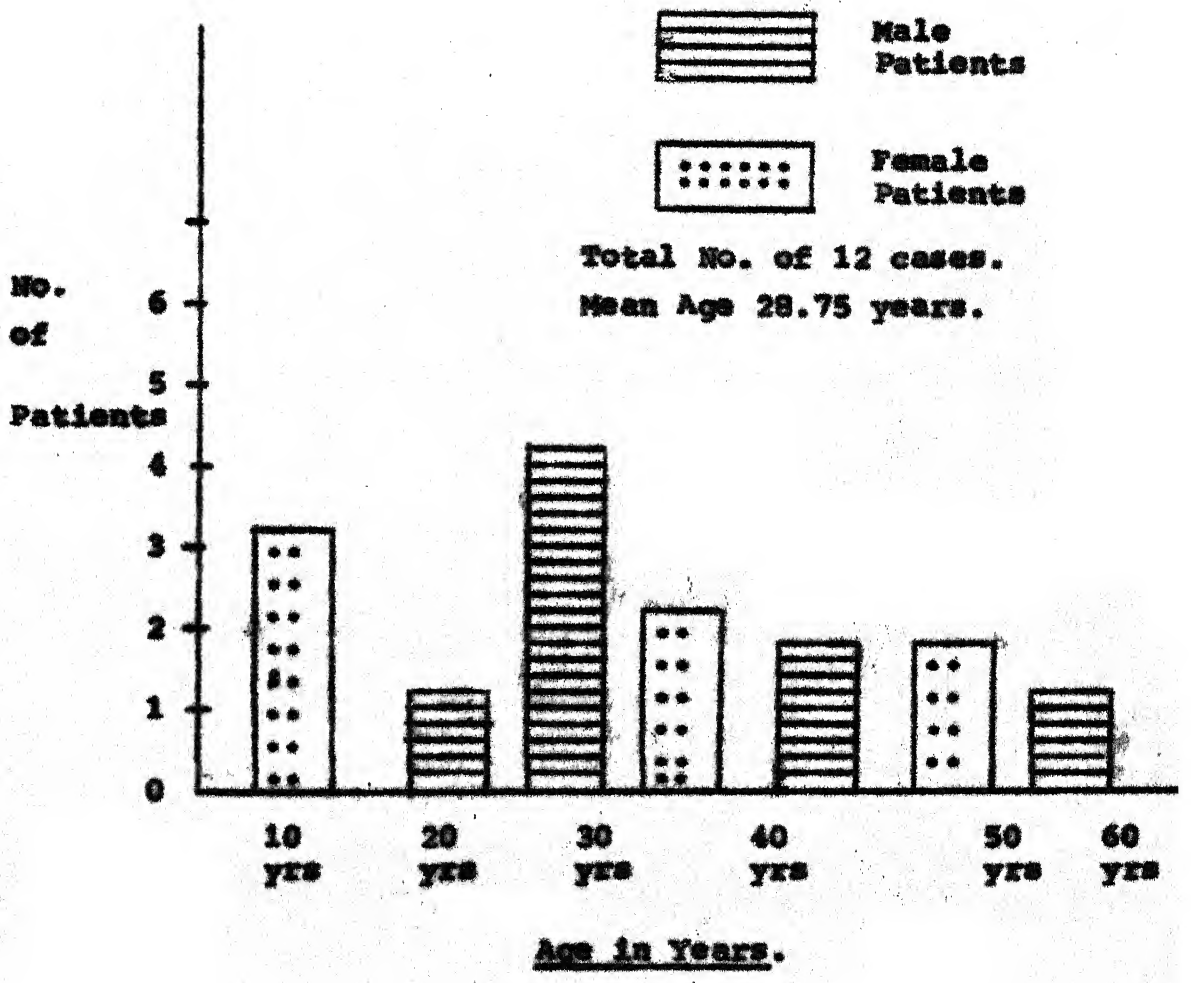
Table - II :

Total No. of cases	Patients having Abdominal Tuberculosis	Male	Female
41	12	5 (41.6%)	7 (58.4%)

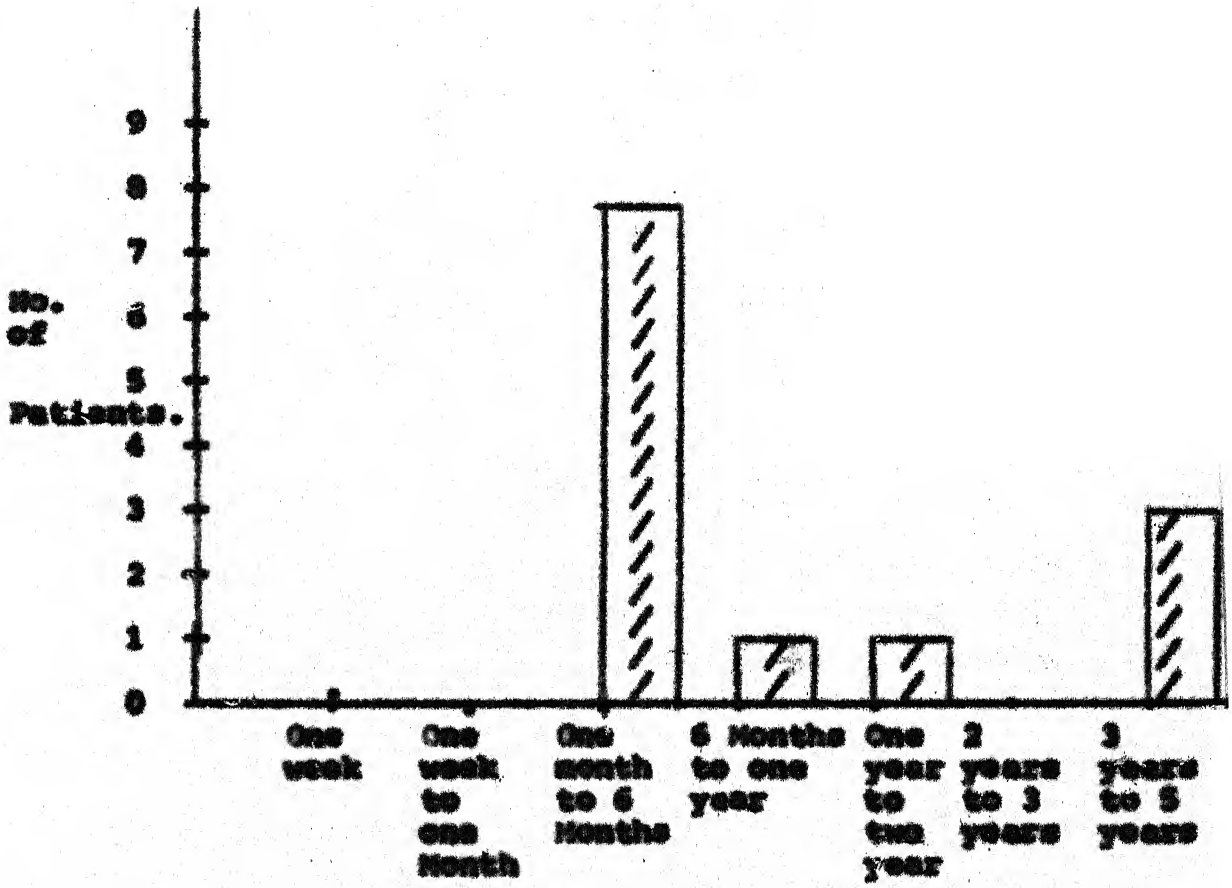
Table - III :

Reveals distribution of patients according to the age in years. Maximum Number, 5 patients were in age group of (21-30) years. Three patients were found in the age group (11-20) years. Three cases were belonging to age group (31-40) years. one patient was in age group. Above 50 years in age groups.

Bar Diagram Showing- Age incidence of Abdominal Tuberculosis.



BAR DIAGRAM SHOWING - DURATION OF SYMPTOMS - PRIOR TO DIAGNOSIS OF ABDOMINAL TUBERCULOSIS.



Duration of Symptoms

In patients having chronic pain in abdomen the incidence of Abdominal Tuberculosis (28%) in present series. In India it varies from (30-40%). While in Western Countries only 10-15% have Abdominal Tuberculosis in chronic pain in abdomen patients.

Table - XIX : Distribution of patients according to age.

S.No	Age group in years.	No. of patients	Incidence
1.	0 - 10 yrs.	8	25%
2.	11 - 20 yrs.	3	41.66%
3.	21 - 30 yrs.	5	-
4.	31 - 40 yrs.	3	25%
5.	41 - 50 yrs.	-	-
6.	Above 50 yrs.	1	8.03%
	Total	12	100%

Table XIX shows distribution of patients in different age group. it is evident that five patients (41.66%) constituted the age group (21-30) yrs., where as 3 patients falls in (11-20) years age group and 3 patients falls in (31-40) yrs. age group.

Table - XV :

Shows the duration of symptoms prior to the diagnosis of abdominal tuberculosis.

Table - XV : Showing duration of symptoms prior to diagnosis of abdominal tuberculosis.

S.No	Duration of Symptoms	Number of patients	Percentage
1.	Upto 1 week.	Nil	Nil
2.	One week to one month.	Nil	Nil
3.	One month to six months.	8	64%
4.	6 months to one year.	1	9%
5.	One year to two years.	1	9%
6.	2 years to 3 years.	Nil	Nil
7.	3 years to 4 years.	1	9%
8.	4 years to 5 years.	1	9%
	Total	12	100%

Table - V : Shows the socio-economic status of patients of Abdominal Tuberculosis.

S.No.	Socio-Economic Status	Number of Patients
1.	High	Nil
2.	Medium	2
3.	Low	10

Table - VI :

Shows the clinical features of patients who were interrogated and examined thoroughly. From this table it is evident that most of patients were having general symptoms i.e. general weakness and evening rise of temperature were present in all (100%), cases when as (93%) patients noticed loss of applite and loss of weight.

As far specific symptoms are concerned, all patients suffered from pain in abdomen and change in bowel habits.

Table - VI : Showing clinical features of patients of abdominal tuberculosis.

Clinical Feature	No. of cases	Incidence
(A) SYMPTOMS		
1. General Weakness.	12	100%
2. Evening rise of temperature.	12	100%
3. Loss of appetite.	10	93%
4. Loss of Weight.	10	93%
5. Pain in Abdomen.	12	100%
6. Change in bowel habit.	12	100%
7. Distension of Abdomen.	3	25%

(B) SIGNS

1.	Diffused fullness	4	34%
2.	Tenderness	10	82%
3.	Visible peristalsis	2	17%
4.	Lump in right iliac fossa	1	8%
5.	Signs of As citil	2	17%

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3 Patients noticed distension of abdomen (25%), one patient (8%), noticed abdominal mass where as Nausea & Vomiting was the complaint of 6 patients (50%), on physical examination 12 (100%) revealed tenderness. Four (34%). Patients revealed diffused fullness and in two cases there was visible peristalsis.

Table - VII :

Reveals that out of 3 cases (25%) cases with lump in Abdomen 1 (8%), cases were having lump in the right iliac fossa 1 (8%) in umbilical region and one case 8% was having lump in epigastrium.

Table - VII : Showing analysis of incidence of lump in Abdomen according to the quadrant of Abdomen.

Area of lump in Abdomen	No. of cases	Percentage of cases
Rt. iliac fossa	1	8%
Umbilical region	1	8%
Epigastrium	1	8%

Table - VXXI :

Elaborated specifically the area of tenderness in all cases of abdominal tuberculosis. In 6 cases (50%) there was generalised tenderness all over abdomen; in 3 cases (25%) it was in right iliac fossa; in two 17% cases tenderness was in umbilical region and only one case (8%) epigastric region was tender.

Table - VXXI : Showing analysis of tenderness in Abdomen.

Areas of tenderness	No. of cases	% of cases
1. Generalised tenderness	6	50%
2. Rt. iliac fossa	3	25%
3. Umbilical region	2	17%
4. Epigastric region	1	8%
Total	12	100%

Table - IX :

Depects the character of pain in Abdominal tuberculosis in present series. 6 cases (50%) were having vagne type of pain; 5 cases (42%) were having colicky type of pain and gripping pain was present in only one case.

Table - IX : Showing analysis of character of pain in Abdomen.

Type of Pain	No. of cases	Percentage
Vagne	7	58%
Colicky	4	34%
Gripping	1	8%
Total	12	100%

Table - X :

Shows that in 9 cases (75%) diarrhoea alternating with constipation was present in 2 cases (17%) constipation and in one case (8%) only diarrhoea was the complaint.

Table - X : Showing analysis of change in bowel habits.

S.No.	Change in bowel habit	No. of cases	Percentage
1.	Alternate Constipation & Diarrhoea	9	75%
2.	Constipation	2	17%
3.	Diarrhoea	1	8%

Table - XI :

Shows that out of 12 cases of abdominal tuberculosis, 9 cases (75%) were admitted routenly and 3 (25%) cases were admitted in emergency ward.

Table - XI : Shows the number of routine and emergency admissions in cases of abdominal tuberculosis.

Admission	Number of cases	Percentage of Patient
Routine	9	75%
Emergency	3	25%
Total	12	100%

Table - XII :

Shows the different methods of diagnosis of Abdominal Tuberculosis, in present study, erythrocyte sedimentation rate was raised in all cases, where as leucocytosis and lymphocytosis was present in 4 cases (33%) and 5 cases (42%) cases respectively, out of 12 cases of abdominal tuberculosis.

Chest X-ray was done in all cases and it showed pulmonary tubercular infiltration in 9 cases (75%). As far the barium studies are concerned, barium meal follow through was done for cliorascal region in 4 cases and in 3 cases (75%) it showed obstruction or narrowing of ileocaecal region.

Barium enema was done in 3 cases and in all these three cases it showed obstruction in large, intestine and in iliocaecal junction.

Table - XII :

S.No.	Type of Investigation	No. of cases in which investigation was done	Findings	Percentage
1.	E.S.R.	12	Raised	100%
2.	Leucocyte count	12	Leucocytosis in 4 cases	34%
3.	D.L.C.	12	Lymphocytosis in 5 cases	42%
4.	Chest X-ray	9	(+)ve in all cases	100%

Table - XXII :

Indicates that from Nine cases of present study, biopsy tissue was removed (6 cases having ileum with mesentery, 2 cases of omentum and one case having mesentery, lymph nodes) and investigated for histopathological examination. In rest of three cases diagnosis of Abdominal tuberculosis was made with out histopathological examination.

Table - XXII : Showing the number of cases investigated or not investigated for histopathological examination.

Histopathological Examination	No. of Cases	Percentage
Yes	9	75%
No	3	25%
Total	12	100%

Table - XXV :

Shows different operative procedures done in cases of abdominal tuberculosis. Lysis of adhesions was done in 4 cases. In these cases bands and

adhesions were present all over ilium and to establish the diagnosis of mesenteric lymph nodes was taken out for histopathological examination. In 2 cases(17%), by pass operations were done to exclude obstruction; and in 5 cases there were multiple strictures over ilium so that resection was not possible and multiple side to side iliocaecal anastomosis were done. In 2 cases (17%) right hemicolectomy with end to end, ileotransverse anastomosis was done.

In rest of the histologically proved cases i.e. in 3 cases (25%) , no definitive surgical procedure was done because there was no pathological evidence of tuberculosis on gross examination. In these cases mesenteric lymph node, and appendicectomy and biopsy of appendix was done to establish diagnosis these patients responded well to antitubercular treatment.

Table - XIV : Showing different operature procedure done.

S.No.	Type of Procedure	No. of cases	% of cases
1.	Lysis of adhesions	4	34%
2.	By pass operations	2	17%
3.	Right hemicolectomy	4	35%
4.	Biopsy of mesenteric lymph nodes	1	8%
5.	No surgical procedure	3	25%

Table - XV :

Depicts the operative findings in the series. One case having more than two findings which are mentioned in this table.

In three cases (25%), patches of tubercles were seen. There patches over, ileum, colon, peritoneum crenum on the mesentry.

In five cases (44%), these were stricture over ileum, large intestine.

In one case (8%), these was ileo-caecal mass. In one case these was jumbled up omentum. In this

omentum was compressing the pylorus, so features of pyloric stenosis were present.

In two cases Ascitis was found and enlargement of mesenteric lymph nodes was present in two cases (17%).

Table - XV : Showing different operative findings.

S.No.	Operative findings	No. of cases	Incidence
1.	Patches of tubercles	3	25%
2.	Strictures	5	44%
3.	Massive adhesions	2	18%
4.	Ileocaecal Mass	1	8%
5.	Jumbled up omentum	1	8%
6.	Enlarged mesenteric lymph nodes.	2	17%

Table - XVI :

Depects different types of abdominal tuberculosis. 4 cases (34%) were proved tubercular adhesive peritonitis; where as ascitic tubercular peritonitis was seen in only two cases (17%). Tubercular

mesenteric lymph edenites was present in two cases (17%). Hypertrophic variety of ileo-cecal tuberculosis was seen in 3 cases (25%) where as ulcerative type was seen in one case (8%) of present study.

Table - XVI : Showing different types of abdominal tuberculosis in present series.

S.No.	Type of Abdominal tuberculosis	No. of cases	Incidence
1.	Adhesive peritonitis.	4	34%
2.	Ascitic peritonitis.	2	17%
3.	Mesenteric Lymphadenitis	2	17%
4.	Hyper trophic ileocecal tuberculosis.	3	25%
5.	Ulcerative tuberculosis	1	8%

DISCUSSION

* D I S C U S S I O N *

Tuberculosis, a world wide malady, has been posing a great threat, specially in the developing countries, since long. In India, this disease continues to be one of the most important public health problem. Among the extra pulmonary tuberculosis, abdominal tuberculosis is a common medical and surgical disease.

In spite of drug therapy and improved hygeine abdominal tuberculosis remains, a significant cause of morbidity and mortility. Prior to the advent of anti-tuberculous drugs, at least 70% of patients with far advanced pulmonary tuberculosis, had tuberculous enteritis.

Despite the frequency with which, the surgeon encounters tuberculosis of abdomen, very little has appeared in the surgical literature on this condition.

The present study has been conducted to find out the incidence of Abdominal tuberculosis in Patients having chronic pain in abdomen, different presentations,

methods of investigations and management of this common conditions.

This study comprises of 41 fourty one patients; out of these 12 turned out to be cases of abdominal tuberculosis and out of rest of these cases, 9 turned out to be cases of chronic appendicitis and 6 cases of chronic cholecystitis, 13 cases belonging to partial intestinal obstruction and one patient have Crohn's disease.

Rest of study comprises of 12 cases of Abdominal tuberculosis.

In this study the male and female ratio was (5:7) 5 male and seven female patients consisted the whole group of patients. In studies carried out the world, it is reported that abdominal tuberculosis is more common in female patients than in males. In Britain male and female ratio is 1:2.5) and in Americe it is (1:1.3). In our country this sex ration varies from (1:2.6) to (1:3.4).

In India, the commonest age group affected is 20-30 years, observations in present study show the

same data i.e. five cases (41.6%) out of 12, were in age group of 20-30 years. In western countries, the most common age group, affected by abdominal tuberculosis, is 40 years. In this study the mean age group is 28.75 years. This mean age is comparable to the mean age reported in developed countries i.e. 63 years.

The duration of symptoms before attending hospital varies considerably and this reflects the inciduous nature of abdominal tuberculosis. Duration of symptoms is one month to six months in 9 cases (75%) cases. This duration is the same as reported in Britain. In U.S.A. This is three years and in our country, reported duration of symptoms is one year.

As the disease affects whole body, general symptoms, like evening rise of temperature, general weakness, loss of appetite and loss of weight, are common. In this present study, it is evident that, these symptoms are quite common (95-100%). These observations are quite different to the observations reported by different authors in India and in developed countries as well. In India the reported incidence of these symptoms is 35 to 45.6% and in developed

countries they vary from 25 to 75% .

Pain in abdomen is the most consistent finding in the present study (100%). In western countries reported irridence of pain in abdomen is 77% and in our country. Das and Khan reported it in 94% and 81.8% respectively. Analysis of character of pain reveals that in 7 cases (58%). Pain was of vague type and in 4 cases (34%), it was colicky and in one case (8%) it was of gripping in nature.

Nausea and Vomiting were non-specific symptoms and more frequent in obstructive lesions. Patients with ascitis had the lowest incidence of vomiting (17%). In present study Nausea and vomiting was complained by 4 cases (34%) patients. In our country the incidence of vomiting is 40.9% and 69.6% , respectively and in western countries, incidence of vomiting varies from 48.3% to 81% and that of Nausea is 51.7% .

Change in bowel habit is usual occurence in Abdominal tuberculosis. In the present study all cases (100%) had this complaint, in the form of alternate diarrhoea and constipation in 9 cases (75%)

constipation in 2 cases (17%) and diarrhoea in 1 case (8%). In our country, the incidence of these symptoms is 4.5 to 11.0% (diarrhoea), 46.7% (constipation) and 8.8% alternate diarrhoea & constipation.

Incidence of distension of abdomen, in present study was 25%. This is common feature of obstructive variety and in ascitic tubercular peritonitis. Various authors from India reported its incidence 22.4% and in western countries 45.0%.

Table VIII shows that in all the cases (100%) tenderness in abdomen was a constant feature. This sign is due to involvement of Parietal peritonium, Inflammation of intestine, Intestinal obstruction and mesenteric lymphadenitis. In our country this sign is the most frequent signs of ascitis was present only in two cases (17%) in this series. In western countries, its incidence is 21% and in our country 18.6 to 27.27% .

Table VII depicts that lump in right iliac fossa was present in 1 cases (8%), in umplical region 1 case (8%) and in epigastrium in one case (8%). This

is comparable with the reports from western countries which show that the incidence of lump in abdomen is 26 to 65%. 16% having lump in right iliac fossa, 6.4% in umbilical region and in 3.2% in left iliac region. In India various reports show that lump in abdomen is in 28.6% to 59.0% cases.

From table XI, it is evident that eryterocyte sedimentation rate (E.S.R.) was raised in all the cases (100%); whereas leucocytosis (More than 11000 cells/mm^3) and lymphocytosis (more than 42%) was present in 34% and 42% cases respectively. These haematological findings from western countries but almost similar to the reports from our country. These blood studies are non-specific and proved disappointing in diagnosis of abdominal tuberculosis incidence of raised E.S.R. varies from 25% to 92.5%. In our country incidence of raised E.S.R. is 92.9%. Leucocytosis was reported to be 14% to 43.8% . Marked lymphocytosis is reported by Kaufman and Donovan. In contrast to this Das reported low lymphocyte count, in 14.7% cases.

Present study shows that X-ray chest was done in all cases of abdominal tuberculosis and 10 cases (84%). Showed pulmonary tubercular infiltration. This observation is different from the views of different

authors in our country who reported that 6% to (50%) cases of abdominal tuberculosis were associated with pulmonary tuberculosis.

Barium meal follow through for ileo-caecal junction was done in 5 cases and 3 cases (60%) showed of narrowing of ileo-caecal junction Das reported a series which showed that barium meal was done in 38 cases, in 15 cases there was no significant finding in (34%) cases, areas of small bowel obstruction and dialatation were seen, in one case there was pyloric stenosis and in 3 cases dialatation of first, second and third part of duodenum was seen where as there was filling defect of caecum in five cases. Singh et al, showed increased intestinal mortility and dilatation of segments of small bowel in 51% cases of tubercular peritonitis.

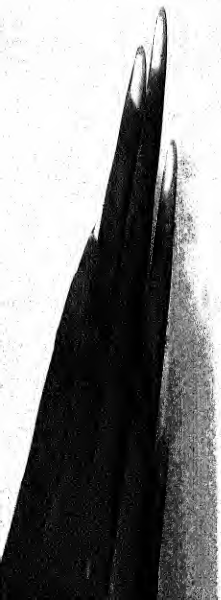
From table XXII it is evident that diagnosis of abdominal tuberculosis was confirmed by histo-pathological examination in 9 cases (75%) , cases who had Exploratory Laparotomy, had patches of tubercles, all over the serosal surface, of intestines in 3 cases (25%) , strictures in ileum and ileo-caecal junction in 6cases (84%) and in other cases various findings were massive adhesions, ileo-caecal mass, jumbled up omentum and enlarged lymph nodes. These findings are

compared with the findings of Andreas et al, that showed the most common finding at Operation were tubercles over the abdominal contents in 12 patients out of 28 cases ileo-caecal mass in 5, lymphadenopathy in 6, ascitis in 3, adhesions in 3 and oedematous bowel.

In the present series table XIV shows that right hemicolectomy and by-pass operations were done in 2 cases each, this finding is comparable with that of Anand and Homan et al, in rest of the cases exploratory laparotomy, different procedures like lysis of adhesions, opening and closing of Peritoneal cavity, biopsy of Peritoneum and mesenteric lymph nodes and appendicectomy was done. These observations are compared with that of Homan et al.

Table XV shows that five types of abdominal tuberculosis were seen in the cases studied in this series. These include adhesive peritonitis (34%) , ascitic peritonitis (17%) , mesenteric lymphadenitis (17%), hypertrophic ileo-caecal tuberculosis (25%) and ulcerative tuberculosis (8%). These types are similar to those studied by different authors.

SUMMARY & CONCLUSION



SUMMARY & CONCLUSION

A prospactive study was carried out on 41 patients of chronic pain in Abdomen who are admitted in wards of M.L.B. Medical College, Hospital, Jhansi out of these 41 patients 12 (30%) turned out to be cases of Abdominal tuberculosis. Rest of these cases includes other causes of chronic Abdominal pain. In our study out of these twelve cases of abdominal tuberculosis 5 (46.6%) males and seven (58.4%) were females.

In the present study maximum incidence of the abdominal tuberculosis was reported in age group of 20-30 years and that is five cases (41.6%).

The duration of symptoms is one months to six months in 9 cases (75%). In this present study it is evident that symptoms like evening rise of temperature, general weakness, loss of appitite, and loss of weight are common (95-100%). Pain in abdomen is most consistant finding in present study (100%).

Vague generalised abdominal Pain was present in seven cases (58%) and in four (34%) it was of colicky in nature. Four patients (34%) of our study series were complaining nausea and vomiting.

Nine cases (75%) were complaining of alternate diarrhoea and constipation, two cases (17%) had constipation and diarrhoea was noticed in one case (8%).

Incidence of distension of abdomen was present in 25% in our study. Ascitis was present in 2 cases (17%).

Lump in right iliac fossa was present in one case (8%), and in umbheal region one case (8%) and in epigastrium one case (8%).

E.S.R. was raised in all cases (100%) which Leucocytosis and lymphocytosis were present in 34% and 42% cases respectively.

Ten cases (84%) showed Pulmonary tubercular

infiltration on X-ray chest. On Barium meal follow through which was done in five cases of our series 3 (60%) showed narrowing of ileocaecal junction.

Diagnosis of Abdominal tuberculosis was confirmed by histopathological examination in all cases (100%). Patient who had exploratory Laparotomy, had tubercles all over serosal surface of intestine in 3 cases (25%), strictures of ileum and at ileo-caecal junction were reported in 44% cases. Rest of our series cases showed massive adhesions, ileocaecal lump, jumbled up omentum and enlarged lymph nodes.

In this series five types of abdominal tuberculosis was seen. This include adhesive peritonitis (34%). Ascitic peritonitis (17%), mesenteric lymphadenitis (17%), hypertrophic ileo-caecal tuberculosis (25%) in ulcerative tuberculosis 8% .

In the present study now we can concluded that incidence of abdominal tuberculosis in patient complaining chronic pain in abdomen is fairly high i.e.

about 30% . So this disease continues to the one of the most public health problem in Bundelkhand region. Therefore, it is of utmost importance that strict survalence for this disease among the patients having chronic Pain in abdomen is necessary. So we can find out the cases effectively and early and provide them adequate treatment to over come hazards of this cripling disease.

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